Azores Bullfinch *Pyrrhula murina*

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Le Bouvreuil des Açores *Pyrrhula murina* constitue une forme très distincte, qui se trouve dans l'est de l'île de São Miguel, Açores. Le plumage des deux sexes est pratiquement identique et ressemble à celui de la femelle du Bouvreuil pivoine *Pyrrhula pyrrhula* d'Europe continentale, le mâle ayant toutefois les flancs et l'abdomen parfois légèrement teintés de fauve rougeâtre. L'espèce était localement abondante et causait des dégâts considérables aux vergers pendant le 19ème siècle, mais elle est devenue rare après 1920. L'effectif actuel d'environ 120 couples est essentiellement confiné à de la végétation indigène qui a été réduite et envahie par des plantes exotiques agressives. L'espèce niche de mi-juin à fin-août. Les oiseaux se déplacent en fonction de la fructification des plantes dont ils se nourrissent, qui comptent 37 espèces (dont 13 sont importantes). Vers la fin de l'hiver ils subsistent largement de bourgeons du houx endémique *Ilex perado*. Des mesures de conservation ont été prises à partir de 1995, à la suite de l'octroi d'une subvention LIFE de l'Union Européenne ayant pour objectif de rétablir et d'améliorer la forêt de lauriers indigène, et en particulier les plantes indigènes qui sont indispensables au Bouvreuil des Açores.

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1–2 Azores Bullfinch *Pyrrhula murina*, São Miguel, 1992 (J. A. Ramos)

3 Nest of Azores Bullfinch *Pyrrhula murina*, São Miguel, 1992 (J. A. Ramos)

4 Habitat of Azores Bullfinch *Pyrrhula murina*, São Miguel, 1992 (J. A. Ramos)

Introduction

Azores (or São Miguel) Bullfinch *Pyrrhula murina* (local name of Priôlo) is a very distinct form, which has only ever been known to occur at the east end of the island of São Miguel in the Azores archipelago (Portugal). Godman[4], who discovered the species, described it as one of the characteristic birds of mountainous areas on the island. The present population, of c120 pairs, is confined to the largest fragments of native vegetation (Macaronesian Laurel Forests). At the end of the last century it had a wider range and was regarded as a pest in orange orchards, being easily taken for museum collections[1]. Native vegetation has been cleared for pasture and/or forested with the exotic Japanese Red Cedar *Cryptomeria japonica*. The remaining fragments have been invaded by aggressive exotic plants: *Pittosporum undulatum*, *Hedychium gardneranum* and *Clethra arborea*. Azores Bullfinch is now considered Endangered by IUCN[5] and is included within the Portuguese Red Data Book[3]. It is also included in Annex I of the European Union's Wild Birds Directive. In 1995, the local forestry service initiated a programme (with European Union funding) in an attempt to restore and expand the area of laurel forest and increase the population of Azores Bullfinch[11].

Plumage

Azores Bullfinch differs markedly from its mainland counterpart. The sexes are virtually identical in coloration, although males sometimes possess a slight reddish-tawny suffusion on the vent and flanks[8]. The traditional method of ageing Bullfinch *Pyrrhula pyrrhula*—colour differences in the greater coverts[7]—is difficult to apply in Azores Bullfinch because adults have buffish-edged coverts too, unlike the greyer tones in mainland Bullfinch. Male Azores Bullfinches are significantly larger than females[14].

Population and habitat

Two main areas of native vegetation are present within the range of the Azores Bullfinch: the largest, centred on the Pico da Vara summit, where birds are resident, and Salto do Cavalo, in the west of the range, where it has been observed in September–December[12]. The population was estimated at 30–40 birds in the late 1970s[6], 100 pairs in 1989[2] and 60–200 pairs in 1991–1996[12] (pers. obs.).

Native vegetation is always preferred but there are seasonal variations in habitat selection: in summer, birds utilise bare ground, short vegetation and forest edges, including exotics, within 200 m of native forest. In January–April it is less catholic and virtually confined to native vegetation[12]. Changes in habitat can be explained by seasonal variation in food resources between habitats: birds move from area to area following the fruiting of food plants. Therefore, the species is more mobile in summer, crossing areas of mature forest to reach areas with herbaceous plants. Colour ringing has demonstrated that longer movements (up to 3 km along streams) occur in May, with birds descending from c700 m to 300 m to feed on herbaceous seeds[12].

Breeding and feeding

The species' behaviour in May and early June—bill caressing and twig display—indicates pre-breeding activity. Females with brood patches occur in mid-June–late August, suggesting a later and shorter breeding season than that of the mainland Bullfinch[14]. Adults moult from September onward. I found two nests in 1992. The first was located in a low plantation (<5 m height) of *C. japonica* and the second within an area of *C. arborea* and native forest, but both were placed on a *C. japonica* tree at c3 m above ground. Nests were alike, consisting of an outer layer of twigs of *C. arborea* and *Erica azorica* and an inner layer of rootlets, grass and moss (Fig 2). The progressive appearance of juveniles in the field suggests two young are usually raised.

Azores Bullfinch is a granivorous–herbivorous bird, consuming foods from at least 37 different plant species, of which 13 are known to be important. In summer, birds take herbaceous seeds (*Polygonum capitatum*, *Prunella vulgaris*, *Leontodon filii*), in autumn seeds of fleshy fruits (*Rubus* sp., *Vaccinium cylindraceum*, *Leicesteria formosa*), in winter tree seeds (*Clethra arborea*) and fern sporangia (*Woodwardia radicans*, *Culcita macrocarpa*), and in spring flower buds (*Ilex perado*), fern sporangia (*Osmunda regalis*), fern fronds (*Osmunda regalis*, *Pteridium aquilinum*) and moss tips[10]. Fern fronds and moss tips are only taken when other foods are scarce[9]. Native plants comprise the majority of the diet in August–September and April. In this month the species appears heavily dependent on flower buds of *I. perado* (with few or no alternative foods available). Seeds of *C. arborea* are ignored (presumably because they are too dry and indigestible) once flower buds reach a length of c2.8–3.0 mm[13]. Seeds of other exotic species are very rarely consumed, especially *C. japonica*, because the species cannot extract the seed from its cone. Therefore, Azores Bullfinch may face food shortages in late winter, because *I. perado* is present at relatively low densities and most flower buds have already been consumed[10].

Conservation

The laurel forest around the Pico da Vara summit (the stronghold of Azores Bullfinch) has been designated a Natural Forest Reserve by the Regional Government of the Azores. It was also designated a Special Protection Area by the Azorean Government under the EU Wild Birds Directive. The control of invasive exotics and planting of native species, raised in nurseries, began in early 1995 following the approval of a EU LIFE grant. The main aim of this project is to re-establish and improve the laurel forest, to ensure and maintain a viable population of Azores Bullfinch in the long term.

Hints for visitors

Azores Bullfinch is easiest to see in May–September, along the mountain road from Nordeste to Povoação, near Miradouro da Serra da Tronqueira; birds feed along this road and adjacent openings on seeds of herbaceous plants, especially *P. capitatum* (which forms a small carpet of pink flowers). In September–November it is possible, although more difficult, to see juveniles near Salto do Cavalo (above Furnas), and beyond Miradouro da Ponta da Madrugada, on the coast road from Nordeste to Povoação.

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